

We claim:

1. An asynchronous transfer mode (ATM) on-demand digital document delivery system, comprising:

5 a customer interface unit configured to permit a customer to order and receive a digital document on-demand;

a server having digital documents stored thereon for delivery to customers through a switched ATM network; and

10 a cache coupled to the server for storing digital documents sent by the server when ordered by a customer, the cache for reducing network traffic by satisfying the on-demand orders instead of the server.

15 2. The document delivery system, as recited in claim 1, wherein the customer interface unit includes a customer premise unit, which supports digital subscriber line (DSL) technology.

20 3. The document delivery system, as recited in claim 1, wherein the customer interface unit permits customer orders to be placed by a telephone interface.

25 4. The document delivery system, as recited in claim 1, further comprising a network control system coupled to the server for checking the cache to determine if the digital document requested by a customer is stored in the cache.

5. The document delivery system, as recited in claim 1, wherein the server is configured to deliver the document to the cache and to the customer concurrently.

30 6. The document delivery system, as recited in claim 1, further comprising a network control system coupled to the server for determining an amount of time a given document is maintained in the cache.

35 7. The document delivery system, as recited in claim 6, wherein the amount of time the given document is maintained in the cache is based on a number of orders placed for the given document.

8. The document delivery system, as recited in claim 1, further comprising a multiplexer for routing signals on a DSL link, the multiplexer including the cache.

9. The document delivery system, as recited in claim 8, wherein the cache is located within the switched ATM network at an edge thereof such that content stored in the cache is obtained from a closest point within the switched ATM network to the customer interface unit.

10. The document delivery system, as recited in claim 1, further comprising a network control system coupled to the server, the network control system managing content stored in the cache.

11. The document delivery system, as recited in claim 1, wherein the documents are videos and the delivery system is a video-on-demand (VoD) delivery system.

12. The document delivery system, as recited in claim 11, wherein the customer interface unit is coupled to a customer control device such that the customer controls a data stream of the video being delivered to the customer by remotely signaling a network control system.

13. The document delivery system, as recited in claim 1, further comprising a network control system coupled to the customer interface unit and the cache to control access to content stored in the cache or on the server by customers.

14. The document delivery system, as recited in claim 13, further comprising virtual circuits set up by the network control system to control access to content stored in the cache or on the server by customers.

15. A method for providing a digital document on-demand over an asynchronous transfer mode (ATM) network, comprising the steps of:

processing a customer request for a digital document received by a server through to a switched ATM network;

storing the digital document in a cache located within the ATM network;

determining whether the digital document is available in a cache system coupled to the ATM network;

if the digital document is available on the cache system, satisfying the customer request from the cache system; and
otherwise, satisfying the customer request from the server.

16. The method as recited in claim 15, wherein the step of satisfying the customer request from the server further comprises the step of sending a copy of the digital document to the cache system for storage.

17. The method as recited in claim 15, further comprising the steps of:
determining a number of customer orders for a given digital document over the ATM network; and
providing an amount of time during which the given digital document is stored cache in accordance with the number of customer orders.

18. The method as recited in claim 15, further comprising the steps of:
determining a number of customer orders for a given digital document over the ATM network; and
providing a number of copies of the given digital document to be stored cache in accordance with the number of customer orders.

19. The method as recited in claim 15, wherein the customer request is originated from customer premise equipment, which employs a digital subscriber line.

20. The method as recited in claim 15, wherein the digital document includes a video file.

21. The method as recited in claim 15, further comprising the step of managing access to content of the cache system and the server based on user access rights and requests.

22. The method as recited in claim 15, wherein the digital documents include videos and further comprising the step of controlling content flow of a data stream of a video from a customer location.

5 23. The method as recited in claim 15, wherein the content flow is controlled by one of reversing, fast forwarding or pausing the video.

24. The method as recited in claim 15, wherein the ATM network includes a network control system, the method further comprising the steps of
10 managing content on the cache system by pushing content to the cache system and deleting content from the cache system.